

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date  
23 June 2005 (23.06.2005)

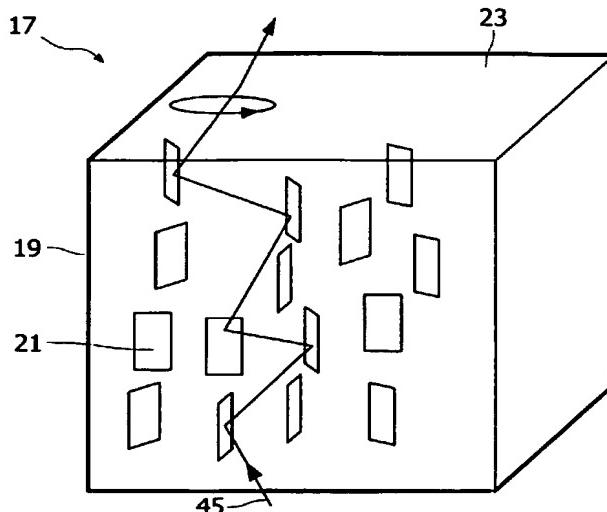
PCT

(10) International Publication Number  
**WO 2005/057254 A2**

- (51) International Patent Classification<sup>7</sup>: **G02B 1/11**
- (21) International Application Number:  
**PCT/IB2004/052706**
- (22) International Filing Date: 8 December 2004 (08.12.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
0328586.3 10 December 2003 (10.12.2003) GB
- (71) Applicant (for all designated States except US): **KONINKLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]**; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **HIKMET, Rifat, A., M. [CY/NL]**; c/o Philips Intellectual Property & Standards, Cross Oak Lane, Redhill Surrey RH1 5HA (GB). **VAN BOMMEL, Ties [NL/NL]**; c/o Philips Intellectual Property & Standards, Cross Oak Lane, Redhill Surrey RH1 5HA (GB).
- (74) Agents: **WILLIAMSON, Paul, L. et al.**; c/o Philips Intellectual Property & Standards, Cross Oak Lane, Redhill Surrey RH1 5HA (GB).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: OPTICAL INTEGRATOR



(57) Abstract: A method of manufacturing an optical integrator panel is provided. The method comprises the steps of: suspending a plurality of elongate particles in a liquid; applying an electric or magnetic field to the suspension to orientate the particles with parallel longitudinal axes; and solidifying the liquid to fix the orientation of the particles, thereby forming an optical integrator panel having a homogeneous distribution of elongate particles. An optical integrator panel is also provided. The optical integrator panel is adapted to reduce the angular dependence of contrast of a liquid crystal display. Specifically, the optical integrator panel is for placement in the path of reflected or transmitted light emitted by the liquid crystal display. The optical integrator panel comprises: a solid transparent panel; and a plurality of elongate particles homogeneously distributed in the panel, wherein the plurality of elongate particles are orientated with parallel longitudinal axes.

**WO 2005/057254 A2**

**Declaration under Rule 4.17:**

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE,*

*BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)*

**Published:**

- *without international search report and to be republished upon receipt of that report*

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*